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[Title of the Invention]

BELT CONVEYING MECHANISM FOR INK-JET RECORDING APPARATUS

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[Fee]

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[List of Attached Documents]

[Name of Document] Specification 1

[Name of Document] Drawings 1

[Name of Document] Abstract 1

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[Name of Document] Specification

[Title of the Invention] BELT CONVEYING MECHANISM FOR INK-JET RECORDING APPARATUS

[Claims]

[Claim 1]

A belt conveying mechanism for an ink-jet recording apparatus, comprising:

a plurality of rollers;

an endless conveyor belt for conveying a record medium, the conveyor belt wrapped around the plurality of rollers;

a recessed portion formed in the outer surface of the conveyor belt;

an ink passing portion for retaining ink and passing it through an inner side of the conveyor belt, the ink passing portion disposed in a bottom surface of the recessed portion near a rear end in a traveling direction of the conveyor belt; and

an ink absorbing member for absorbing the ink retained in the ink passing portion from the inner portion of the conveyor belt.

[Claim 2]

The belt conveying mechanism for an ink-jet recording apparatus according to claim 1, wherein the ink passing portion is continuously and integrally formed with

a surrounding thereof.

[Claim 3]

The belt conveying mechanism for an ink-jet recording apparatus according to claim 1 or 2, wherein the recessed portion is formed with a "V" shape, the rear end of the belt traveling direction projects as an apex, and the ink passing portion is provided near the apex.

[Claim 4]

The belt conveying mechanism for an ink-jet recording apparatus according to any one of claims 1 to 3, wherein the portion of the roller opposite to the ink passing portion is formed with an annular recessed portion.

[Claim 5]

The belt conveying mechanism for an ink-jet recording apparatus according to claim 4, wherein a guide member supporting at least a portion of the conveyor belt from its inner side is disposed so that it does not come into contact with the portion of the inner surface of the conveyor belt corresponding to the ink passing portion.

[Claim 6]

The belt conveying mechanism for an ink-jet recording apparatus according to any one of claims 1 to 5, wherein the ink absorbing member is movable between a position at which it comes into contact with the conveyor belt and a position at which it does not come into contact

with the conveyor belt.

[Claim 7]

The belt conveying mechanism for an ink-jet recording apparatus according to any one of claims 1 to 5, wherein the ink passing portion includes a projection extending toward the inner side of the conveyor belt, and the ink absorbing member is provided at a location that does not come into contact with the conveyor belt other than the projection.

[Detailed Description of the Invention]

[0001]

[Technical Field]

The present invention relates to a belt conveying mechanism for use in conveying a record medium in an ink-jet recording apparatus that conducts recording of desired images by ejecting ink onto a record medium.

[0002]

[Background Art]

An ink-jet recording apparatus is an apparatus which causes ink ejected from nozzles formed in recording heads to adhere to paper to thereby form a desired image on the paper. In such an ink-jet recording apparatus, a belt conveying mechanism is sometimes used as a mechanism for conveying the paper serving as a record medium. In a case where the length occupied by the heads in the conveying direction of the paper is long, a relatively short piece of paper cannot be conveyed with a roller conveying mechanism. It is however possible for the belt conveying mechanism to convey such a short piece of paper.

[0003]

In an ink-jet recording apparatus, when the state where ink is not ejected from the nozzles continues for a long period of time, the surfaces of the ink meniscuses dry and poor ink ejection arises. In order to prevent

this, it is necessary to periodically conduct so-called flushing in which the ink is forcibly ejected from the nozzles towards a location other than the paper when printing is not being conducted. In the case of a serial-type ink-jet recording apparatus where the heads reciprocally move in a direction orthogonal to the conveying direction of the paper, flushing can be rapidly conducted by moving the heads to a position offset from the paper conveying path when printing is not being conducted. However, in the case of a line-type ink-jet recording apparatus where the heads are fixedly disposed along the direction orthogonal to the paper conveying direction, for example, when the aforementioned belt conveying mechanism is adopted as the paper conveying mechanism, it is necessary to move a member that catches the ink to a position facing the heads after the belt conveying mechanism or the heads has/have been retracted. Therefore, the configuration becomes complicated, and it is difficult to conduct flushing rapidly.

[0004]

Thus, techniques have been described in Patent Documents 1 and 2 that enable rapid flushing in a line-type ink-jet recording apparatus employing a belt conveying mechanism, in which technique an opening is disposed in a portion of the conveyor belt, and ink is

ejected towards a member disposed below the opening.

[0005]

[Patent Document 1]

Japanese Unexamined Patent Publication No. 2001-287377 (FIGS. 1 and 3)

[Patent Document 2]

Japanese Unexamined Patent Publication No. 2001-113690 (FIGS. 1 and 3)

[0006]

[Problems to be solved]

However, in the above-described technique of the Patent Documents 1 and 2, there is a problem in that the strength of the conveyor belt significantly drops due to the presence of the opening in the conveyor belt. As a result, a desired belt tension cannot be obtained, the paper-conveying function of the conveyor belt drops, and the life of the conveyor belt becomes short.

[0007]

It is therefore an object of the present invention to provide a belt conveying mechanism for an ink-jet recording apparatus that enables rapid flushing in a line-type ink-jet recording apparatus with a relatively simple configuration and that is less susceptible to drop in the strength of a conveyor belt.

[0008]

[Means for solving the Problems]

In order to achieve the above object, there is provided a belt conveying mechanism for an ink-jet recording apparatus, comprising a plurality of rollers, an endless conveyor belt for conveying a record medium, the conveyor belt wrapped around the plurality of rollers, a recessed portion formed in the outer surface of the conveyor belt, an ink passing portion for retaining ink and passing it through an inner side of the conveyor belt, the ink passing portion disposed in a bottom surface of the recessed portion near a rear end in a traveling direction of the conveyor belt, and an ink absorbing member for absorbing the ink retained in the ink passing portion from the inner portion of the conveyor belt (claim 1).

[0009]

According to the above configuration, rapid flushing becomes possible with a relatively simple configuration by ejecting ink towards the recessed portion without retracting the conveyor belt or the heads. Also, a drop in the strength of the conveyor belt can be reduced because the conveyor belt has no opening formed therein. Further, the ink flushed in the recessed portion can be removed from an outer circumferential face of the belt effectively in accompaniment with the traveling of the

belt.

[0010]

In the present invention, the ink passing portion may be continuously and integrally formed with a surrounding thereof (claim 2). According to this, a drop in strength reduction of the conveyor belt can be furthermore reduced.

[0011]

In the present invention, the recessed portion may be formed with a "V" shape, the rear end of the belt traveling direction projects as an apex, and the ink passing portion is provided near the apex (claim 3). According to this, the roller is prevented from being contaminated with ink over the wide area other than the portion corresponding to the ink passing portion.

[0012]

In the present invention, the portion of the roller opposite to the ink passing portion may be formed with an annular recessed portion (claim 4). According to this, ink passing through the ink passing portion is prevented from adhering to the roller to thereby prevent belt slippage and transfer of ink from the roller to the printing medium.

[0013]

In the present invention, a guide member supporting

at least a portion of the conveyor belt from its inner side may be disposed so that it does not come into contact with the portion of the inner surface of the conveyor belt corresponding to the ink passing portion (claim 5). Also in this case, ink passing through the ink passing portion is prevented from adhering to the guide member. Thus, the belt slippage furthermore hardly occurs and transfer of ink from the guide member to the printing medium can be also prevented.

[0014]

In the present invention, the ink absorbing member may be movable between a position at which it comes into contact with the conveyor belt and a position at which it does not come into contact with the conveyor belt (claim 6). According to this, it is possible to minimize the friction between the ink absorbing member and the conveyor belt. Also, ink absorbed in the ink absorbing member is prevented from adhering to the conveyor belt, so that belt slipping further hardly occurs.

[0015]

In the present invention, the ink passing portion may include a projection extending toward the inner side of the conveyor belt, and the ink absorbing member may be provided at a location that does not come into contact with the conveyor belt other than the projection (claim 7).

According to this, the conveyor belt can be prevented from being dirty.

[0016]

[Embodiments of the Invention]

Hereinafter, very proper embodiments of the present invention will be described with reference to the drawings.

[0017]

Fig. 1 is a schematic view of an ink-jet printer provided with a belt conveying mechanism in accordance with a first embodiment of the invention. An ink-jet printer (ink-jet recording apparatus) 1 of Fig. 1 is a color ink-jet printer provided with four ink-jet heads (recording heads) 2. The ink-jet printer 1 includes a paper feed section 11 on the left in the diagram and a paper discharge section 12 on the right in the diagram.

[0018]

A paper conveying path extending from the paper feed section 11 to the paper discharge section 12 is formed inside the printer 1. A pair of paper feed rollers 5 that grip and carry paper, i.e., an image recording medium, are disposed immediately downstream of the paper feed section 11. Paper serving as a record medium is sent from left to right in the diagram. At an intermediate portion of the paper conveying path are disposed two rollers 6 and 7 and a conveyor belt 8 that is wrapped around the rollers 6 and

7. The surface on the conveying surface side of the conveyor belt 8 is adhesive by silicone rubber. Paper conveyed by the pair of paper feed rollers 5 is retained by adhesion on the conveying surface of the conveyor belt 8 and is conveyed downstream in the conveying direction, i.e., toward the right in the diagram, by the driving force of the roller 6 being rotated clockwise, i.e., in the direction of arrow A.

[0019]

Press member 9 is disposed at a side of belt roller 6 opposite to the paper conveying path. The press member 9 is for pressing the paper onto the conveying surface of the conveyor belt 8 to ensure that the paper on the conveyor belt 8 does not rise from the conveying surface but that the paper is reliably conveyed on the conveying surface.

[0020]

A peeling mechanism 10 is disposed to the right in the diagram of the conveyor belt 8. The peeling mechanism 10 peels the paper, which is retained by adhesion on the conveying surface of the conveyor belt 8, from the conveying surface, and send the paper towards the paper discharge section 12 on the right.

[0021]

The four ink-jet heads 2 respectively include a head

main body 18 (which is composed of a passage unit having ink passages and a pressure chamber, and an actuator unit pressurizing the ink in the pressure chamber adhered each other) at lower ends thereof. Each head main body 18 has a rectangular cross section, and the head main bodies 18 are disposed in mutual proximity so that the longitudinal direction thereof is a direction perpendicular to the paper conveying direction, i.e., the direction perpendicular to the drawing plane of Fig. 1. In other words, the printer 1 is a line-type printer. A multiplicity of nozzles are disposed in each bottom surface of the four head main bodies 18, and magenta, yellow, cyan and black inks are respectively ejected from the four head main bodies 18.

[0022]

Each head main body 18 is disposed so that a small gap is formed between the lower surface thereof and the conveying surface of the conveyor belt 8, and the paper conveying path is formed in this gap. Thus, when the paper conveyed by the conveyor belt 8 successively passes directly below the four head main bodies 18, the inks of the respective colors are ejected from the nozzles towards the upper surface, i.e., a printing surface of the paper, whereby a desired color image can be formed on the paper.

[0023]

The ink-jet printer 1 is provided with a maintenance unit 17 for automatically conducting the maintenance to the ink-jet heads 2. In the maintenance unit 17, four caps 16 for covering the four head main bodies 18 and a purge device (not shown) are installed.

[0024]

The maintenance unit 17 is positioned just below the paper feed portion 11 (retracted position) when the printing is being conducted in the printer 1. When a predetermined condition is satisfied after the printing (e.g., when the printing is not conducted for a predetermined time period, or when the printer 1 is powered-off), the maintenance unit moves to a position immediately below the four head main bodies 18 where the cap 16 covers the lower face of the head main body 18 to thereby prevent drying of ink at the nozzle of the head main body 18.

[0025]

The belt rollers 6 and 7, and the conveyor belt 8 are supported by a lift device, which includes an eccentric axis 14 and a cylinder member 15 rotating in accompaniment with the rotating movement of the eccentric axis. When the maintenance unit 17 moves between the retracted position and the cap position, the lift device is configured to drop the conveyor belt 8 and the belt

rollers 6 and 7 from the position shown in Fig. 1 to a proper distance to thereby secure a space for movement of the maintenance unit 17.

[0026]

Two guide members 21a and 21b (of which only 21a is illustrated in Fig. 1, and regards 21b, see Fig. 4) that support the conveyor belt 8 from the inner side thereof by contacting the inner surface of the conveyor belt 8 on the upper path facing the ink-jet heads 2, are disposed in a region enclosed by the conveyor belt 8. The ink absorbing member 27 made of felt is disposed between the two guide members 21a and 21b. The guide members 21a and 21b, and the ink absorbing member 27 will be described in furthermore detail with reference to Fig. 4.

[0027]

The conveyor belt 8 has a two-layer structure formed by two sheets being adhered each other. An inner sheet 8a is made of woven or non-woven fabric, and an outer sheet 8b is made of silicone rubber (see Fig. 3). Additionally, because part of the inner sheet 8a is not covered by the outer sheet 8b, a single recessed portion 24 that has a height that is the same as the thickness of the outer sheet 8b is disposed in the outer surface of the conveyor belt 8. Meanwhile, it should be noted that the timing at which the paper is conveyed in the ink-jet printer 1 is

adjusted so that the paper is conveyed by the portion other than the recessed portion 24.

[0028]

Figs. 2 and 3 are respectively the plan view and the perspective view illustrating the state where the conveyor belt 8 is disposed at an upper side, i.e., a position where the recessed portion 24 faces the ink-jet head 2. As illustrated in Figs. 2, 3, the recessed portion 24 is of a pentagonal shape having a width that is equal to the width of the belt when seen in plan view. The recessed portion has a stepped portion 24a at rear end in the traveling direction of the conveyor belt, the stepped portion 24a being "V" shaped, with an apex 24b projecting forward in the traveling direction at a center of the belt in the width-direction of the belt 8. A stepped portion 24c front end in the traveling direction is of a straight linear shape along the belt width direction.

[0029]

A inner sheet member 8a whose surface has been administered a water-repellent finish by coating the surface with a silicon agent or the like, is disposed in the large portion of the bottom surface of the recessed portion 24 so that virtually no ink is absorbed. However, the water-repellent sheet member 8a is not disposed in the vicinity of the apex 24b, and this vicinity serves as the

non-water-repellent region 25. The non-water-repellent region 25 of the inner sheet member 8a can retain ink in the gap thereof due to the capillary force of fibers and pass the retained ink through the inner portion of the conveyor belt 8. In this embodiment, the non-water-repellent portion 25 is an ink retaining portion for retaining ink and passing it toward the inner portion of the conveyor belt 8.

[0030]

Also, in the recessed portion 24, a distance L between the front end of the stepped portion 24a in belt traveling direction and the stepped portion 24c is a distance that is somewhat longer than twice the width of a head main body 18. As will be described later, this is because the distance is set so that the flushing of ink into the recessed portion 24 is conducted using two ink-jet heads 2 as a unit.

[0031]

Fig. 4 is a perspective view of the neighboring region of the two belt rollers 6 and 7 when viewing the conveyor belt 8 in a perspective view. As shown in Fig. 4, the two rollers 6 and 7 are cut out near the center position in longitudinal-direction, corresponding to the apex 24b of the recessed portion 24, so that annular recessed portions 6a and 7a having smaller diameters than

the peripheries are respectively formed in the rollers 6 and 7. The two guide members 21a and 21b are rectangular parallelepipeds of the same size and are distant at positions corresponding to the recessed portions 6a and 7a by the same distance of these recessed portions 6a and 7a . Thus, the non-water-repellent region 25 of the inner sheet member 8a does not contact the rollers 6 and 7 and the guide members 21a and 21b even when the conveyor belt 8 is traveling.

[0032]

Further, as shown in Fig. 4, the ink absorbing member 27 having the substantially rectangular parallelepiped shape is disposed at a position near the roller 6 between the guide members 21a and 21b. Due to a drive mechanism, it is possible for the ink absorbing members 27 to selectively assume either of a position at which it contacts the inner surface of the conveyor belt 8 and a position at which it does not contact the inner surface of the conveyor belt 8. The ink absorbing members 27 is disposed at a position where it comes into contact with the inner surface of the belt 8 at a time when flushing is conducted, and a position where it does not come into contact with the inner surface of the belt at a time other than the case.

[0033]

Next, the movement of ink flushed on the conveyor belt 8 will be described with reference to Fig. 5. Fig. 5 is an enlarged cross-sectional view of the vicinity of the recessed portion 24 at the belt of center position in width-direction of the conveyor belt 8, shown in a temporal sequence accompanying the traveling of the conveyor belt 8. Figs. 5A-5C show the state when the recessed portion 24 is on the upper path, and Fig. 5D shows the state when the recessed portion 24 is on the lower path.

[0034]

In order to conduct the flushing, first, as shown in Fig. 5A, the conveyor belt 8 is made to travel to a position at which the region between the front end of the stepped portion 24a in the belt traveling direction and the stepped portion 24c of the recessed portion 24 faces the two head main bodies 18 near the roller 7 of the four head main bodies 18. Then, after the traveling of the conveyor belt 8 is stopped, ink is ejected or flushed towards the recessed portion 24 of the conveyor belt 8 from all of the nozzles of these two head main bodies 18. Thus, the ejected ink 30 is disposed on the inner sheet 8a that is the bottom surface of the recessed portion 24.

[0035]

Thereafter, the conveyor belt 8 is made to travel so

that the region between the front end of the stepped portion 24a in the belt traveling direction and the stepped portion 24c of the recessed portion 24 faces the two head main bodies 18 near the roller 6 of the four head main bodies 18. Then, as shown in Fig. 5B, after the traveling of the conveyor belt 8 is stopped, the ink is ejected towards the recessed portion 24 of the conveyor belt 8 from all of the nozzles of these two head main bodies 18. Thus, the ejected ink 30 is disposed on the inner sheet 8a that is the bottom surface of the recessed portion 24. When the conveyor belt 8 is made to travel in this state, the ink 30, ejected from the two head main bodies 18 near the roller 7 of the four head main bodies 18, moves in the direction opposite to the traveling direction inside the recessed portion 24 due to inertia, and when the ink reaches the stepped portion 24a, it moves toward the apex 24b.

[0036]

When the conveyor belt 8 is made to travel after the ink ejection from the two head main bodies 18 near the belt roller 6 is stopped, as shown in Fig. 5B, the ink 30 retained on the inner sheet member 8a gradually moves opposite to the traveling direction of the belt in the recessed portion 24, and when it reaches the stepped portion 24a, it moves towards the apex 24b. When the ink

30 reaches the non-water-repellent region 25, it seeps and is retained therein. Then, before the recessed portion 24 is positioned on the lower path by the traveling of the conveyor belt 8, most of the ink 3 ejected from the four head main bodies 18 reaches the non-water-repellent region 25 and is retained therein as shown in Fig. 5C.

[0037]

Moreover, immediately after the conveyor belt 8 travels and the recessed portion 24 is positioned on the lower path, as shown in Fig. 5D, the non-water-repellent region 25 of the inner sheet member 8a contacts the ink absorbing member 27 and passes below it. At this time, the ink 30 retained in the non-water-repellent region 25 is absorbed due to capillary force generated by the ink absorbing member 27 and discharged from the inside of the non-water-repellent region 25. In other words, a material whose ink-retaining power is stronger than the ink-retaining power of the non-water-repellent region 25 is used as the ink absorbing member 27. Thus, the flushing operation in the ink-jet printer 1 is terminated.

[0038]

As described above, although the ink-jet printer 1 using the belt conveying mechanism 13 of this embodiment is a line-type printer, ink is ejected towards the recessed portion 24 without retracting the conveyor belt 8

or the ink-jet heads 2, whereby rapid flushing becomes possible with a relatively simple configuration. Thus, manufacturing costs can be reduced, miniaturization of the ink-jet printer 1 is realized, and it also becomes possible to increase the printing rate per unit of time.
[0039]

Also, because unlikely the afore-mentioned patent documents 1 and 2, an opening for flushing is not formed and only the recessed portion 24 is disposed in the conveyor belt 8, there is little drop in the strength of the conveyor belt 8. Particularly in this embodiment, because the non-water-repellent region 25 continuously and integrally formed with the inner sheet member 8a is formed with an ink retaining portion, the drop in the strength of the conveyor belt 8 is extremely small. Thus, a desired belt tension can be obtained, troubles do not arise in the paper conveying process, and there is virtually no reduction in the life of the conveyor belt 8. Thus, a desired belt tension can be obtained, troubles do not arise in the paper conveying process, and there is virtually no reduction in the life of the conveyor belt 8.
[0040]

Moreover, the ink 30 flushed in the recessed portion 24 is rapidly absorbed by the ink absorbing members 27 disposed inside of the conveyor belt 8 via the non-water-

repellent-region 25, whereby the ink 30 is rapidly removed from the outer surface of the conveyor belt 8. Thus, virtually no troubles arise during printing after flushing.

[0041]

Also, because the non-water-repellent region 25 of the ink passing portion is disposed near the apex 24b having a "V" shape, the rollers 6 and 7 and the guide members 21a and 21b do not become dirty with the ink in a wide range except for the portions corresponding to the non-water-repellent region 25. Thus, belt slippage and transfer of ink to the paper from the rollers 6 and 7 and the guide members 21a and 21b can be held to a minimum. In particular, because the portions of the rollers 6 and 7 of this embodiment are cut out so that the annular recessed portions 6a and 7a are respectively formed, and the guide members 21a and 21b are disposed so as not to contact the portions corresponding to the non-water-repellent region 25 of the conveyor belt 8, ink can be prevented from adhering to the rollers 6 and 7 and the guide members 21a and 21b. Therefore, belt slippage resulting from the ink and transfer of ink to the paper virtually do not occur.

[0042]

Also, it is possible for the ink absorbing member 23a and 23b to selectively assume either of a position at

which it contacts the conveyor belt 8 and a position at which it does not contact the conveyor belt 8. Therefore it is possible to minimize the friction between the ink absorbing member 27 and the belt 8 by contacting the ink absorbing member 27 and the belt 8 only during flushing operation. Also, because it is possible to reduce the ink, that has seeped into the ink absorber 27, adhering to the conveyor belt 8, there is the advantage that belt slippage and transfer of ink to the paper can be suppressed.

[0043]

While the proper embodiments have been described, the present invention does not limited thereto, and may be diversely changed within the scope of the claims. For example, although in the afore-mentioned embodiment, the stepped portion 24a in the rear end of the recess portion 24 in the belt traveling direction has the "V" shape, the shape may be of other shapes such as U or W instead of V.

[0044]

Also, the ink passing portion may have a construction different from that of the afore-mentioned embodiment. For example, a through-hole is formed in the inner sheet member 8a, and ink-retaining or ink-passing member like a woven or non-woven fabric may be attached thereto. However, in this case, the attached portion and the neighbors have no integration therebetween so that

strength thereof can be reduced.

[0045]

Further, as shown in Fig. 6, the ink passing portion 35 may include a projection 35a protruding toward the inner side of the conveyor belt 8. Herein, the ink absorbing member 37 is preferably positioned at a location where it does not contact the conveyor belt 8 except the projection 35a. Thus, it is possible to restrict a dirty of the conveyor belt 8.

[0046]

Also, the ink absorbing member 27 or the inner sheet member 8a may be made of a material other than woven or non-woven fabric. Further, the belt roller 6 and 7 may not be provided with an annular recess, and the guide member may contact the portion of the conveyor belt 8 corresponding to the non-water-repellent-region 25. Further, the conveyor belt 8 is not essentially of two-layer structure, but may have a layer structure of three or more layers or of only one layer.

[0047]

It is possible to fix the ink absorbing member 27 to contact the portion of the conveyor belt 8 corresponding to the non-water-repellent-region 25, instead of being movable. Moreover, it is possible to change the distance L between the front end of the stepped portion 24a in the

belt traveling direction and the stepped portion 24c, so that, for example, the distances are somewhat longer than the width of a head main body 18 or four times the width of a head main body 18. In this case, the unit of the head main bodies 18 conducting flushing may be changed.

[0048]

Also, although in the afore-mentioned embodiment, the ink absorbing member 27 has a relatively short length, it may have a length that is the same as the guide members 21a and 21b along the traveling direction. Moreover, the ink absorber 27 may contact the inner surface of the conveyor belt 8 on the upper path of the conveyor belt 8. Furthermore, the invention is applicable not only to a line-type ink-jet printer but also to a serial-type ink-jet printer.

[0049]

[Effects of the invention]

According to the above configuration, rapid flushing becomes possible with a relatively simple configuration by ejecting ink towards the recessed portion without retracting the conveyor belt or the heads. Also, a drop in the strength of the conveyor belt can be reduced because the conveyor belt has no opening formed therein. Further, the ink flushed in the recessed portion can be removed from an outer circumferential face of the belt

effectively in accompaniment with the traveling of the belt.

[Brief Description of the Drawings]

[FIG. 1]

It is a schematic view showing an ink-jet printer provided with a belt conveying mechanism in accordance with a first embodiment of the invention.

[FIG. 2]

It is a plan view of a conveyor belt included in the ink-jet printer shown in Fig. 1.

[FIG. 3]

It is a partial perspective view of a conveyor belt included in the ink-jet printer shown in Fig. 1.

[FIG. 4]

It is a perspective view of the neighboring region of the two belt rollers included in the ink-jet printer shown in Fig. 1;

[FIG. 5]

It is an enlarged cross-sectional view of the vicinity of a recessed portion at a belt width-direction center position of the conveyor belt, shown in a temporal sequence accompanying the traveling of the conveyor belt.

[FIG. 6]

It is a partial cross-sectional view of a conveyor belt included in the ink-jet printer shown in Fig. 1

according to a modified embodiment.

[Description of Reference Numerals and Signs]

1 Ink-jet Printer

2 Ink-jet Head

5 Paper Feed Roller

6,7 Belt Roller

8 Conveyor Belt

8a Inner Sheet member

8b Outer Sheet Member

18 Head Main Body

24 Recessed Portion

24a Stepped Portion

24b Apex

24c Stepped Portion

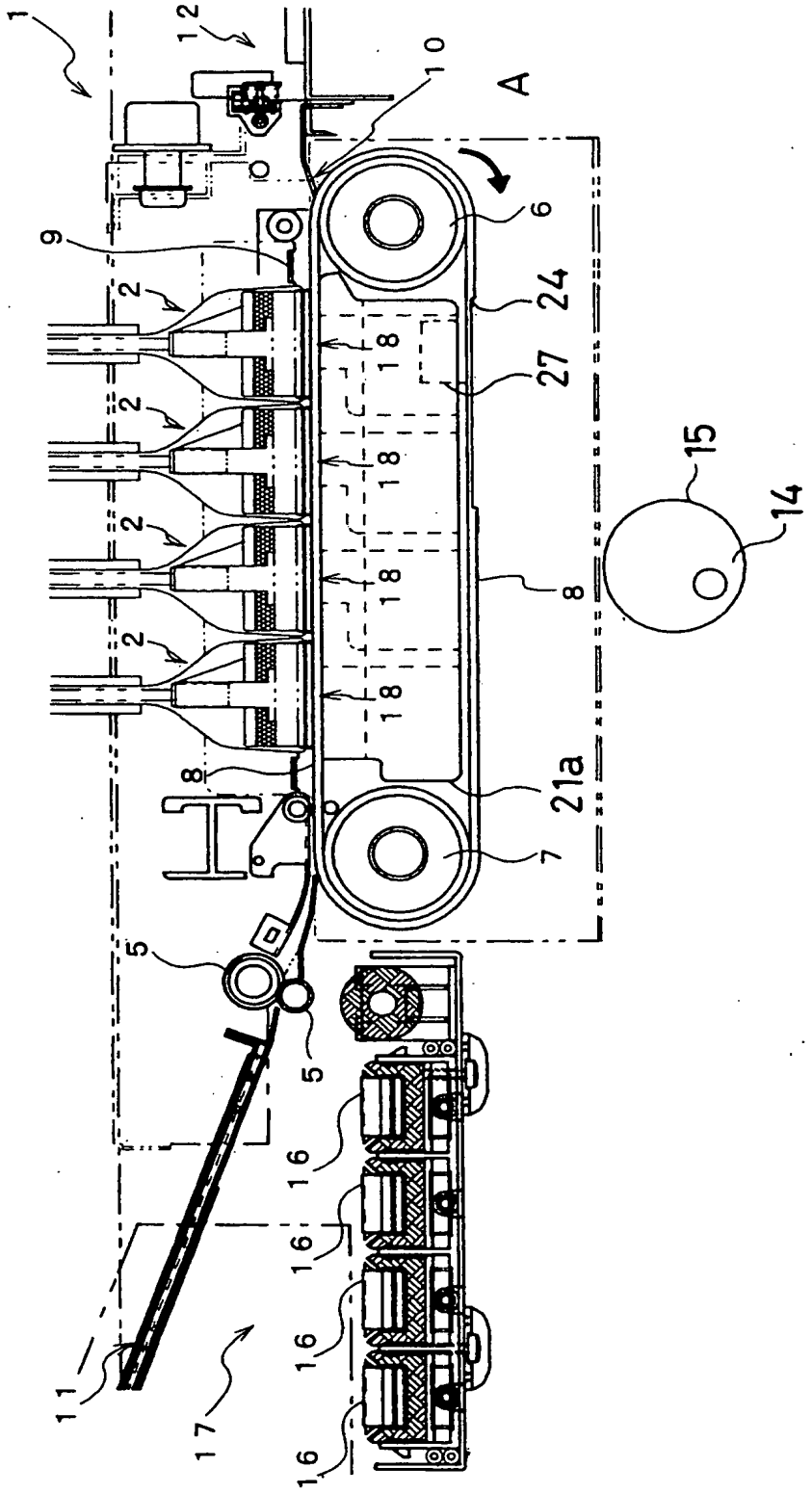
25 Non-Water-Repellent-Region

27 Ink Absorbing Member

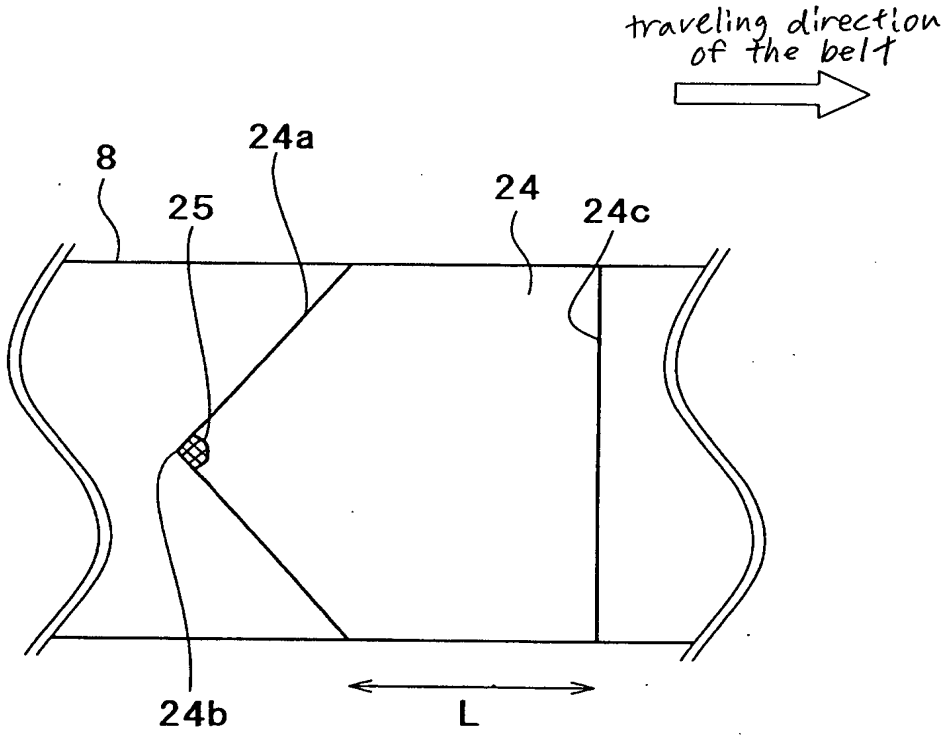
30 Ink

[Name of Document] DRAWINGS

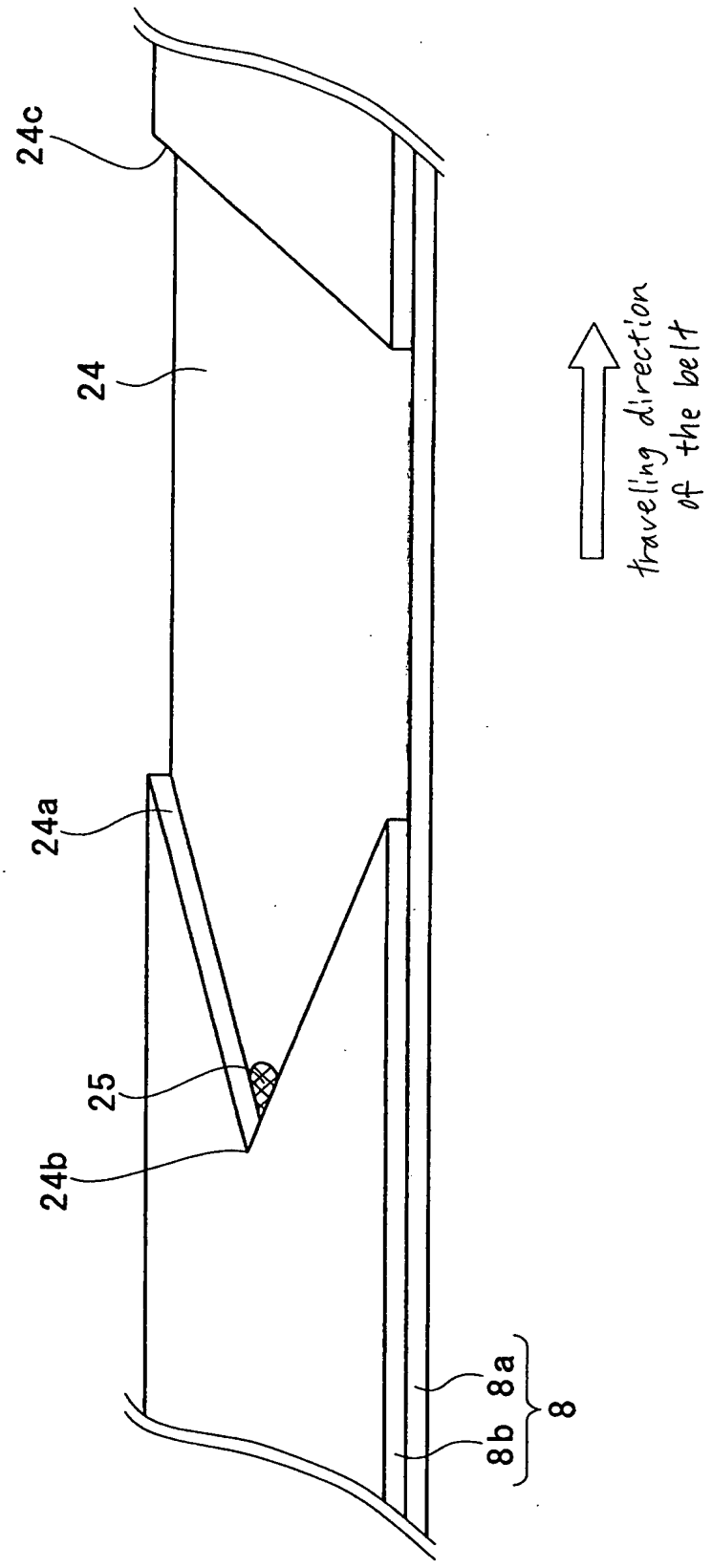
[Fig. 1]



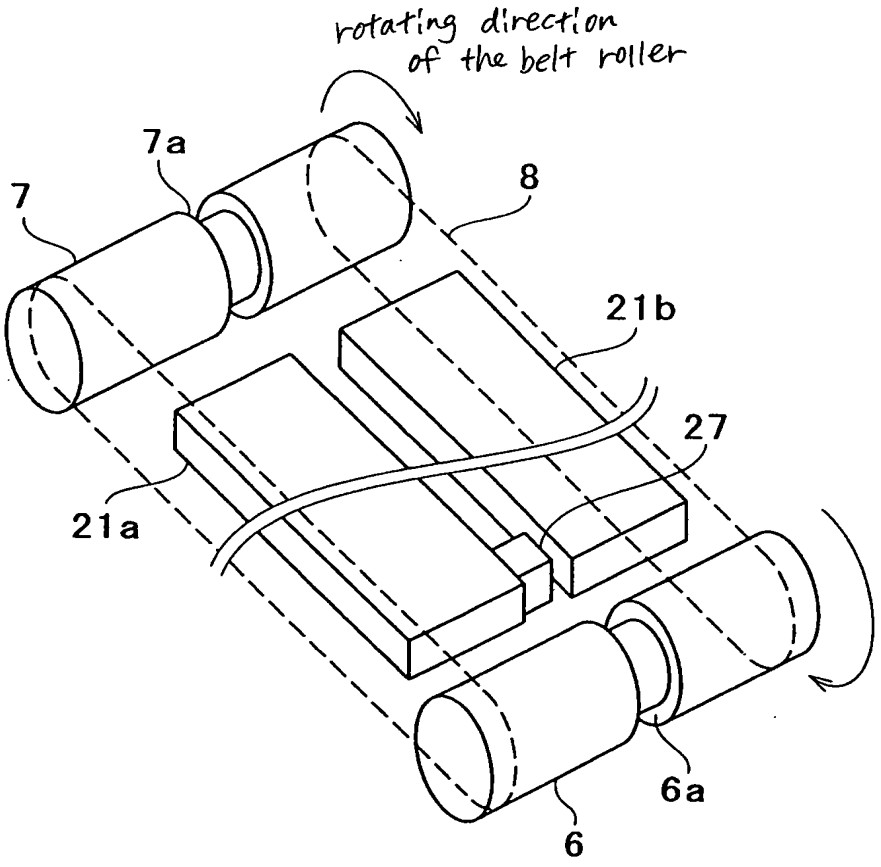
[Fig. 2]



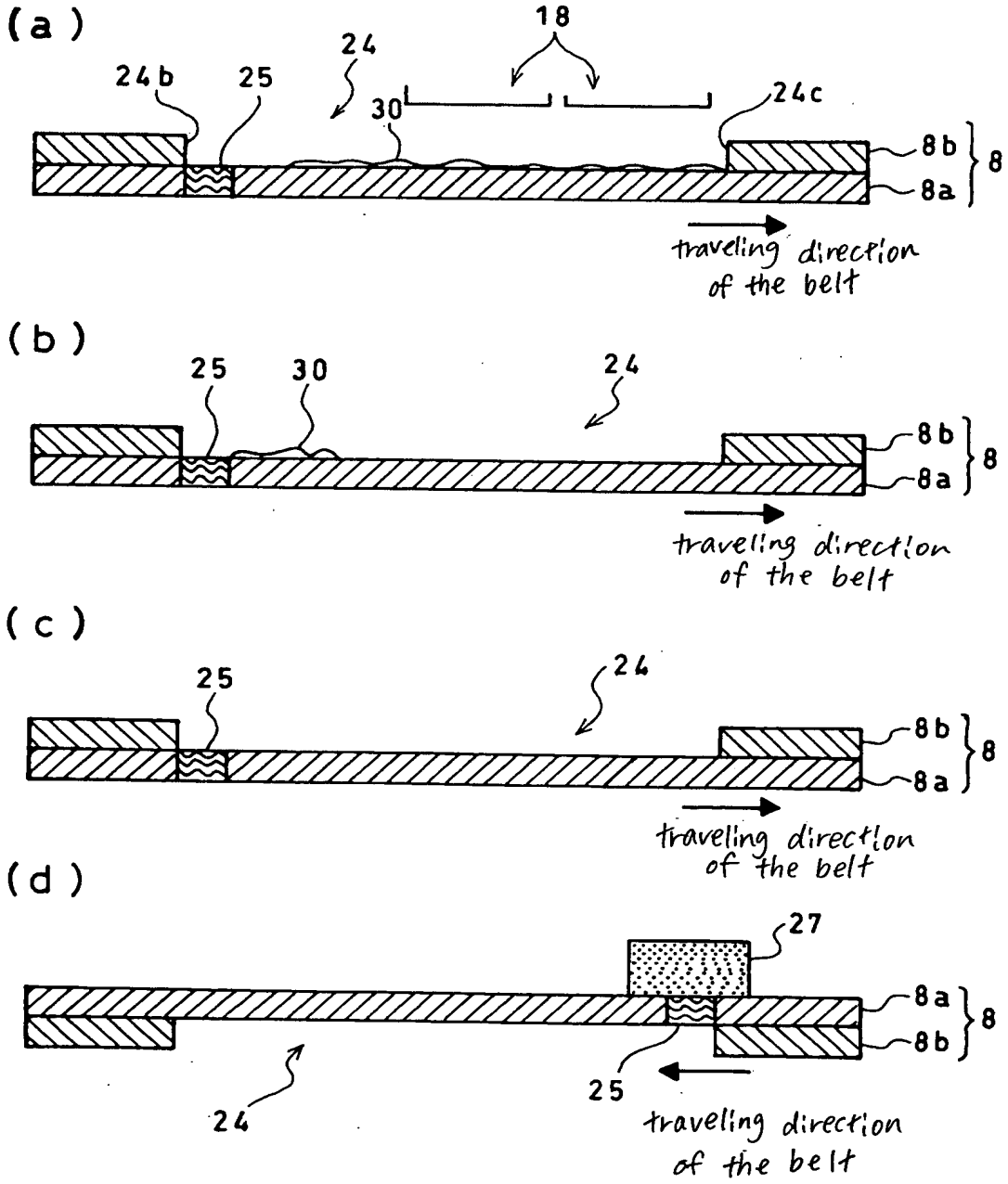
[Fig. 3]



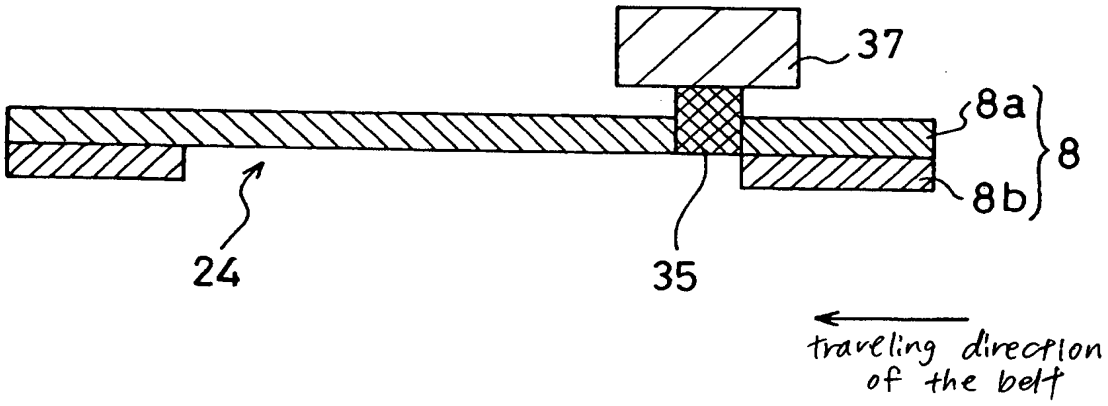
[Fig. 4]



[Fig. 5]


(a)
18
24
24b
25
30
24c
8b
8a
8
traveling direction of the belt
(b)
25
30
24
8b
8a
8
traveling direction of the belt
(c)
25
24
8b
8a
8
traveling direction of the belt
(d)
27
8a
8b
8
24
25
traveling direction of the belt

[Fig. 6]



[Destination of Document] ABSTRACT

[Abstract]

[Problem] To enable rapid flushing and reduce drop in strength of the conveyor belt with a relatively simple construction.

[Means for Resolution] The surface of the conveyor belt 8 is formed with a recessed portion 24. Most of the bottom surface of the recessed portion 24 is water-repellent finished. The stepped portion 24a at the rear end in the belt traveling direction of the recessed portion 24 has a "V" shape so that vicinity of the apex 24b thereof becomes a non-water-repellent region 25 capable of retaining ink and passing it toward the inner side of the conveyor belt 8. The ink ejected toward the bottom face of the recessed portion 24 upon being flushed moves toward the non-water-repellent region 25 due to inertia in accompaniment with the belt traveling. The ink retained in the non-water-repellent region 25 is absorbed in the ink absorbing member disposed inside the conveyor belt 8.

[Selected Figure] Fig. 3